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ARMSTRONG, WESTERMAN & HATTORI, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

SHINGLETON, MICHAEL B

ART UNIT PAPER NUMBER

2817

DATE MAILED: 08/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09-813,303

Applicant(s)

Banba et al.

Examiner

SHINGLETON

Group Art Unit

2817

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE Three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 5-2-2003

☒ This action is FINAL.

- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-19 ☒ are pending in the application.
- Of the above claim(s) 6, 7, 9-11, 15 ☒ are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-5, 8, 12-14, 16-19 ☒ are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____ ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other _____

Office Action Summary

DETAILED ACTION

Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 12 recites that the thickness of the thin film resistor can be any thickness (See the previous office action concerning this claim). Applicant has amended independent claim to recite a specific thickness, therefore claim 12 does not further limit the subject matter of the previous claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vinn et al. 4,717,888 (Vinn) in view of Shaw 2,787,560 (Shaw) and Millman.

Note Figure 1 and elements 30d and 20 therein of Vinn. Vinn is silent on the frequency range of operation and the use of thickness of the thin film resistor being smaller than three times its skin depth at the operating frequency range. Since Shaw is silent on the operation frequency range, clearly the device of Shaw can be operated at any conventionally known operation frequency range for the operational amplifier or differential amplifier. Operating in the microwave range of 1MHz for an OP AMP is a conventional frequency range of operation for an OP AMP as evidenced by Millman. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to operate the OP AMP of Vinn at the microwave range because, as the reference is silent on the operating range any convention frequency range of operation would have been usable therewith such as the well-known microwave (1MHz) operation range as taught by Millman.

Shaw teaches that “[I]n order for metal film resistors to be fully useful for microwave work it is necessary that the film be a relatively small fraction of the skin effect depth for such wavelengths.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the thickness of the thin film resistor to be less than three times its skin depth at the microwave frequency so as to have the resistor be fully useful for microwave work as taught by Shaw.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holt page 384 of Electronic Circuits" (Holt) in view of Vinn et al. 4,717,888 (Vinn), Millman and Shaw 2,787,560 (Shaw).

The claimed invention represented by Figures 1 and 13 of the instant application presents a CE amplifier wherein the resistor connected to the collector i.e. "321" or "30" is a thin film resistor.

Figure 13-1 of Holt discloses the CE amplifier having the exact structure of the instant elected and claimed invention, except Holt is silent on the use of a thin film resistor(s) for the resistor R4 that is connected to the collector of the transistor. Holt is silent on the operating frequency range.

In CE configurations like Holt, Vinn teaches that it is well known to those of routine skill in the art to utilize a thin film resistor "30d" for the resistor connected to the collector of the transistor 20. Thin film resistors have lower inductance over discrete units. In other words these resistors are more like ideal resistors compared to the discrete units, i.e. there is an enhanced frequency response because these elements do not have or have lower reactive components. This clearly is one reason why Vinn employs thin film resistors for the resistor connected to the collector of the transistor. Another reason is that the thin film resistor is integrable. Further still another reason Vinn employs thin film resistors as is common knowledge to those of routine skill in the art is that these elements are easily trimmable in the integration process, i.e. their values can be made very accurate. All these reasons that are common knowledge to those of routine skill in the art makes the use of these thin film resistors highly advantageous in amplifier circuits.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use thin film resistor(s) for the resistor connected to the collector in Holt so as to decrease or eliminate frequency effects, i.e. make for an ideal resistor, allow for integration and trimmability as taught by Vinn.

As to the claimed "no frequency dependency", as stated above no element is ideal, not even applicant's thin film resistor. Therefore since no discrete measurable range is claimed nor any discrete structure that defines "no frequency dependency" the thin film resistors mentioned above are seen as meeting this "limitation". Since Holt is silent on the operation frequency range, clearly the device of Holt can be operated at any conventionally known operation frequency range for the CE amplifier or CE based differential amplifier. Operating in the microwave range of 1MHz for an amplifier is a conventional frequency range of operation for an amplifier as evidenced by Millman. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to operate the amplifier of Vinn at the microwave range because, as the reference is silent on the operating range any convention frequency range of operation would have been usable therewith such as the well-known microwave (1MHz) operation range as taught by Millman.

Shaw teaches that "[I]n order for metal film resistors to be fully useful for microwave work it is necessary that the film be a relatively small fraction of the skin effect depth for such wavelengths.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the thickness of the thin film resistor to be less than three times its skin depth at the microwave frequency so as to have the resistor be fully useful for microwave work as taught by Shaw.

Claims 12, 13 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holt page 384 of Electronic Circuits" (Holt) in view of Vinn et al. 4,717,888 (Vinn), Millman and Shaw as applied to claims 1-5, 8, and 14 above, and further in view of Campbell et al. 5,546,033 (Campbell).

The reasoning as presented with respect to claims 1-4, 8 and 14 above as rejected under 35 USC 103 and the following: Claims 16-19 set forth the limitations on the thin film resistors as being of "a metal or a metal compound" that includes the likes of "aluminum, titanium or tantalum", or "semiconductor". Holt and Vinn are silent on the use of these compositions to make up a thin-film resistance.

Figure 3 of Campbell discloses the use of a thin film resistance element 311 connected to a transistor can take the form a thin film resistor whose thin film can be a "polycrystalline silicon" i.e. semiconductor, or a tantalum metal. These are art recognized equivalent materials used to make up a thin film resistor.

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Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted conventional semiconductor or metals like tantalum in place of the generic thin film layer of Holt in view of Vinn, as these references are silent as to the material forming the thin film resistor, any art-recognized material, such as that disclosed by Campbell, would have been usable as the well-known conventional thin film resistive material.

Applicant's arguments with respect to the claims of record have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is 703-308-4903. The examiner can normally be reached on Monday-Thursday from 8:30 to 4:30. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal, can be reached on (703) 308-4909. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

MBS

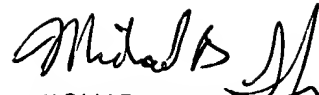
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July 23, 2003


MICHAEL B SHINGLETON
PRIMARY EXAMINER
GROUP PART I UNIT 2817